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Digital Literacy Skills and MOOC Participation among Lecturers in a Private University in Nigeria

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Abstract

Massive Open Online Courses (MOOCs) promote open access to learning materials, thereby, providing learning opportunities for professional development and lifelong learning. University lecturers, especially in developing countries can leverage on the opportunities provided by MOOCs for skills acquisition. Considering that studies have highlighted digital literacy skills as a determinant of MOOC participation, this study examined lecturers' digital literacy skills and their participation in MOOCs. The study adopted a survey research design while the population of study comprised 110 lecturers from the Management and Social Sciences discipline at a private University in Nigeria. A self-developed questionnaire was used as an instrument for data collection from the entire population. Data collected were subjected to analysis using simple percentages, mean score and logistic regression. The findings from the study revealed that on the overall, lecturers possessed advanced digital literacy skills ($\bar{x}$ = 3.60). Regarding the enrolment for MOOC, just 15% of the respondents had enrolled for at least a course on any of the MOOC website. Additionally, only 20% of those that enrolled for at least a course on the MOOC website indicated they actively participate in the courses they enrolled for. Lastly, the study revealed no statistically significant influence of lecturers' digital literacy skill on their enrolment in MOOC (X^2=2.35, p>0.05). Conclusively, while this study has revealed that lecturers' digital literacy skills have no influence on their MOOC participation, it also revealed that lecturers are not yet availing themselves of the opportunities for skills acquisition and knowledge update made possible by MOOCs.

Keywords – MOOC, Digital literacy, University lecturers, Nigeria

Introduction

Massive Open Online Courses (MOOC) is a significant development in learning technologies deployed in higher education. It is an online platform that present individuals with the opportunity to undertake structured courses within a period at a predefined pace with little or no cost. It has been likened to virtual classrooms where instructors and participants interact to impart knowledge for lifelong learning and professional development (Castaño-Muñoz, Kreijns, Kalz, & Punie, 2017). Learning materials, usually recorded video lectures and discussions produced by partnering institutions are made available to participants at little or no costs. Israel (2015) observed that MOOC does not only represent development in distance learning and lifelong learning but it is also having an impact on the traditional face-to-face classroom settings. As is the traditional classroom education method, MOOC is characterised by a predefined course duration and weekly topics, however, there is usually no fee charged, no prerequisites, no predefined expectations for participation in most instances, and no formal accreditation or a degree like certificate (McAuley, Stewart, Siemens, Cormier, and Commons, 2010). All that is often required for participation in a MOOC class is one's interest and access to the internet. McAuley et al. (2010) described MOOC as an online platform that integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources. MOOC leverages on the active engagement of several hundred to several thousand learners who self-organize their participation based on their learning goals, prior knowledge and skills, and shared interests.

MOOC is characterised by collaboration and openness. Collaboration in terms of learners from various background and race being able to interact and learn on a common topic of interest. In terms of openness, MOOC provides a platform for experts to share

knowledge with a variety of learners notwithstanding background or location, thereby, democratising knowledge. MOOC has continued to gain increasing attention with researchers highlighting the merits as well as shortcomings. Particularly, in the context of developing countries, MOOC exposes learners to free or almost free world-class higher education course contents. It provides a platform for participants to update their knowledge for professional development as well as lifelong learning (Clark, Vealé, & Watts, 2017; Mohamed & Hammond, 2018; Nkuyubwatsi, 2013). However, like every other innovation, MOOCs have their peculiar challenges, some of which are the length of time required to participate in course sessions, technological failure, massive number of students with fewer teachers to handle the courses, pedagogical constraints such as lack of face-to-face interaction and quality of student assessment (Ecclestone, 2013; Hew & Cheung, 2014).

There are quite a number of MOOCs learning platforms, examples are Coursera, EdX, MIT Open CourseWare, Udacity, and Futurelearn. In terms of participation, McAuley et al. (2010) noted that MOOC is open and invitational. This means that no one is excluded from participating in MOOC, instead, learners determine the extent and nature of their participation, thereby dictating their participation preferences. To participate, learners sign up on one of the platforms or websites, thereafter, browse through their catalogue and then enrol for their course of choice usually in a specific subject area. During enrolment, learners are informed about the course, host institution, participation details and materials (Ghazali & Nordin, 2016). To grade participants' activities, MOOC encourages continuous assessment, regular self-test, compulsory projects and examination. At the end of the course, successful candidates are given a statement of accomplishment, a badge or a certificate, sometimes at a cost depending on the platform or individual's enrolment preference.

Although the original intention for MOOC was to make higher education or learning resources available to students, there is increasing evidence that MOOCs are platforms that also provide learning opportunities for professional development and lifelong learning. This has led to growing research attention given to its opportunities, challenges, awareness and use among professionals including university lecturers. For instance, a cross-sectional study on awareness and utilisation of MOOC and video series as continuous learning tools for faculties in India revealed that among medical faculties that are aware of MOOC, many had enrolled in MOOC at least once (Dhanani, Chavda, Patel, & Tandel, 2016). Their study concluded that if there is an increase in MOOC awareness level among faculties, there will be an increase in participation for self-directed learning purposes. In another study that surveyed lecturers involved in MOOC production at the University of Copenhagen, it was revealed that MOOC is a good way to improve the quality of education for students. This is because MOOC inspired many of them to improve their on-campus teaching, include more online elements in their traditional face-to-face teaching and communicate research-based knowledge to the public (University of Copenhagen's MOOC Unit, 2015). In Malaysia, Ghazali and Nordin (2016) in their study on University lecturers' perception of teaching and learning in MOOC noted that lecturers use MOOC in teaching and learning process by integrating video and animation.

From developing countries, a study conducted among stakeholders in MOOC from Colombia, the Philippines and South Africa with the aim of informing MOOC practices across developing countries revealed that barely 38% of the study's participants have enrolled or participated in a MOOC at least once (Garrido, Koepke, Andersen, & Garrido, 2016). Of these number, 60% were employed, and 46 % held college degrees and above. According to the study, MOOC users were classified into four categories namely: registrants, browsers, completers and certified users. This classification is closely

related to that of Escher et al. (2014) who classified MOOC users into active and inactive users. Some of the motivation for participating in MOOC highlighted by their study are: gaining specific job skill, preparing for additional education and obtaining professional certification. On the other hand, the main barrier to MOOC participation is employers' mistrust of the quality of the standards. The study concluded that MOOC users across developing countries are more likely to complete MOOC and obtain certification. This is because the certification verifies progress made, endorses skill gained and determines if the set learning goals were attained.

From the literature, some factors noted to limit use or adoption of MOOCs in higher education are lack of digital literacy skills, no reward for teaching, democratisation and competition from other providers, need for self-directed learning, need for good instructional design (EduTech, 2013; Fyle, 2013; Richter, 2013 in Al Dhlan, 2017). In this study digital literacy refers to individual's ability to use a computer (hardware and software), using online information and creating and managing online information. Castaño-Muñoz et al. (2017) surveyed the influence of digital competence and occupational setting on MOOC participation among participants of five different MOOCs resident in the European Union. Findings from their study revealed that participant's level of digital competence is an important predictor of their decision to enrol for MOOC. In their study, respondents had a high level of digital competence and the informational and interacting aspect of digital competence was essential to MOOC participation. However, interaction skills were higher than those for information skills, revealing interaction skill as an essential aspect of digital competence for MOOC participation. Importantly, their study revealed that employees with support from their employer are less likely to participate in MOOC. However, among them, those with a high level of digital interaction

skill participated in MOOCs more often than those with lower level skill who participated in the traditional training.

The literature reviewed suggests some requirement for participation in MOOC, and of the various factors, digital literacy seems to be an important one influencing MOOC participation. Although there is an increasing amount of literature on MOOC participation in developing countries, there is still lack of empirical evidence on the influence of digital literacy on MOOC participation among University lecturers from developing countries, especially Nigeria. Therefore, this study fills such gap by surveying university lecturers' digital skill and their participation in MOOC. Specifically, the study set out to:

(1) describe the digital literacy level of lecturers,

(2) determine lecturers' participation in MOOC, and

(3) ascertain the influence of digital literacy skills on MOOC participation.

Methods

The study adopted the survey research design. The population of the study comprised 110 lecturers from the School of Management and Social Sciences of a private University in Nigeria. Using total enumeration technique, all 110 members of the population were recruited to participate in the study. A self-developed questionnaire tagged 'Digital literacy and Massive Open Online Courses Participation Questionnaire' was used for data collection. The questionnaire was administered to the entire population. Thereafter, 60 copies of the questionnaire were retrieved and consequently analysed for this study. Descriptive statistics including frequency counts, simple percentages, and mean scores was used for data analysis. Logistic regression was also carried out to ascertain the influence of the respondents' digital literacy skills on MOOC enrolment.

Results

Findings from the study are presented below.

Lecturers' level of digital literacy skills

Figure 1 a, b, c and d shows the digital literacy skills of respondents in terms of computing skills, creating information online, finding information online and using online information. Figure 1a shows the level of skills possessed by the respondents in computing skills, especially in terms of managing computer hardware or software. The figure shows that 48% and 47% of the respondents are experts in operating a personal computer and operating an application software respectively. On the other hand, the figure revealed that 15% of the respondents are beginners in using productivity tools. On the overall, respondents' computing skill is high. Figure 1b revealed 35% are proficient in starting and managing an online discussion, 35 % are advanced in creating digital learning materials. Also, 28% of the respondents are a beginner in writing a web page or blog entry. Figure 1c revealed 62% are expert in browsing the internet to download needed resources while 5% of the respondents are a beginner in evaluating useful online resources. Figure 1d shows 32% and 31% of the respondents are proficient in organising and classifying bookmarks and downloaded file and sharing a URL by email or social bookmarking respectively. On the average, respondents had advanced digital literacy skills (mean=3.60). Specifically, respondents had high digital literacy skills in finding information online and managing computer hardware and software.

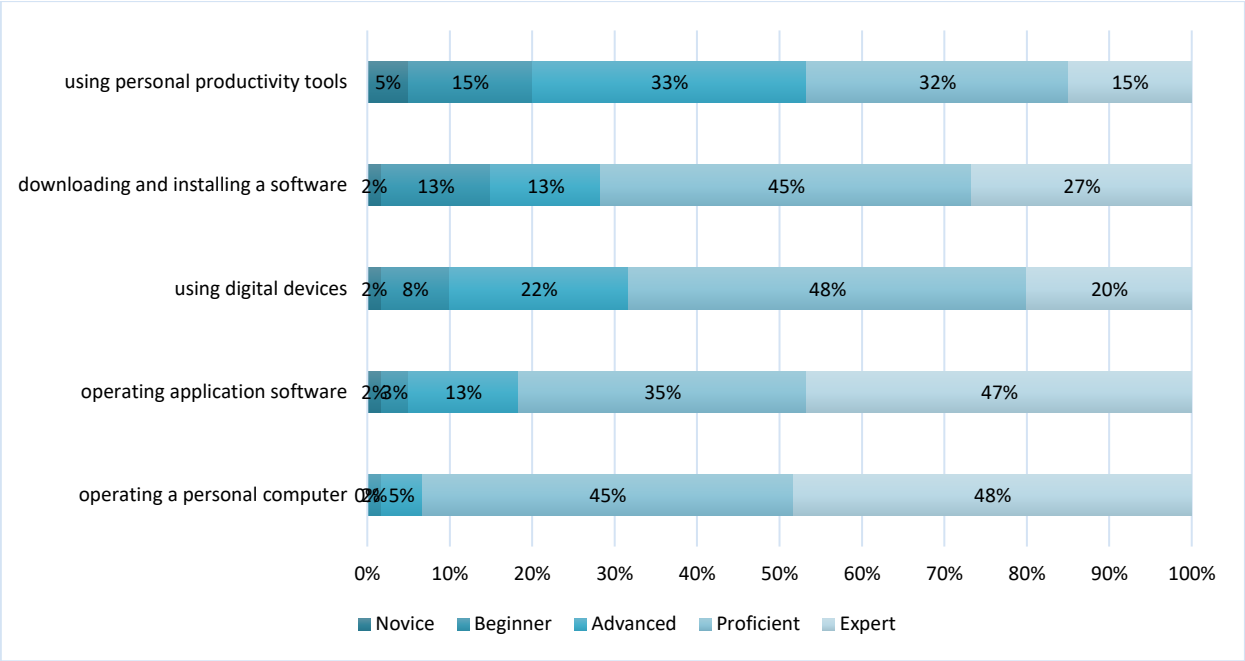

Figure 1a. Computing skills (hardware and software)

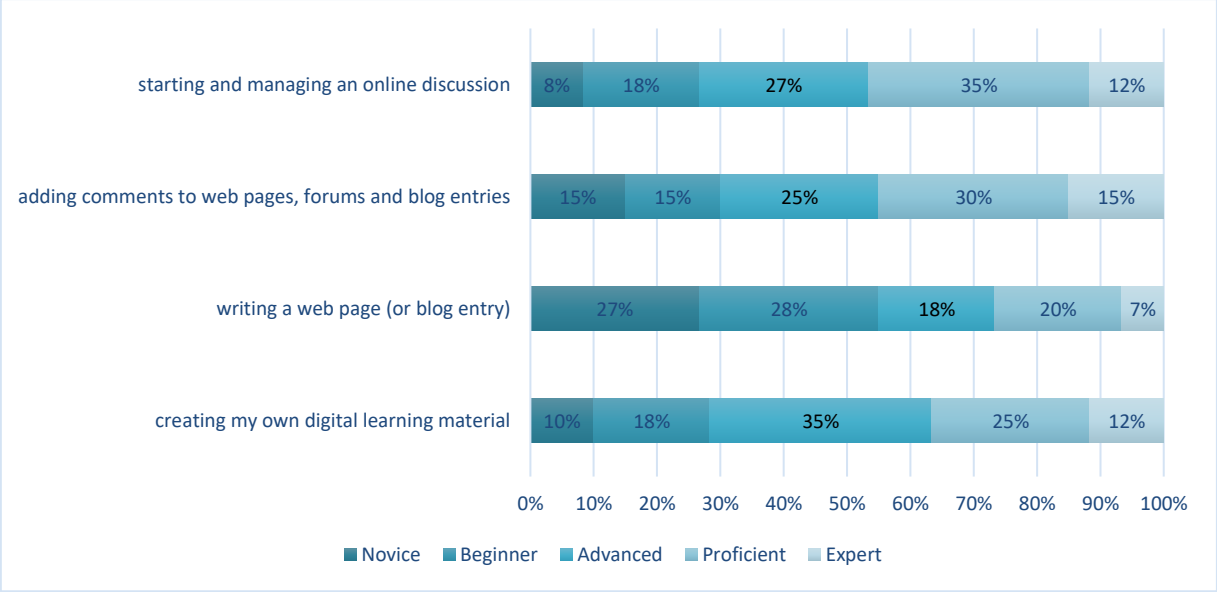

Figure 1b. Creating information online skill

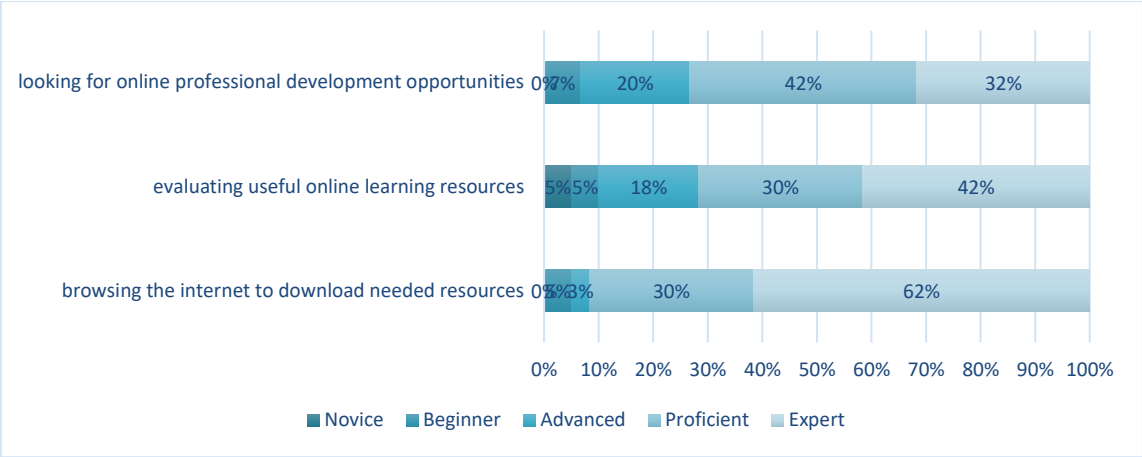

Figure 1c. Skill in finding information online

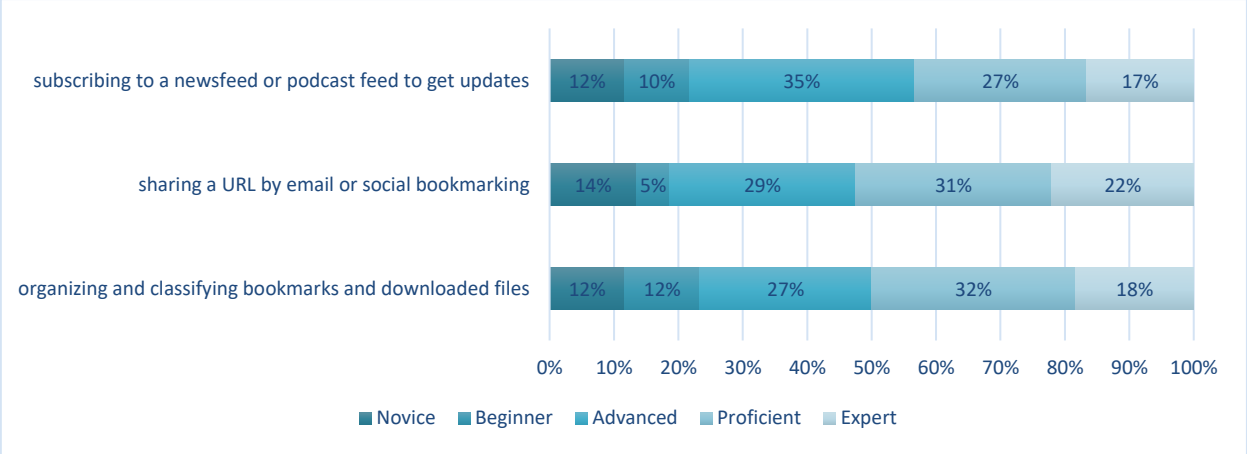

Figure 1d. Skill on using online information

Nature of participation in MOOC among lecturers

On lecturers' participation in MOOC, the study sought answers to questions on their enrolment, type of participation, and certification was received at the end of the course. It is important to mention that the questions on MOOC were branching questions in nature. Therefore, the result is presented under relevant themes below.

Enrolment in MOOC

On respondents' enrolment for MOOC, 75% had never enrolled for a course on MOOC website, and only just 25% of the respondents had registered for a course on any of the MOOC platform or website at least once. This implies that just a few of the respondents had enrolled for at least a course on any MOOC website. Further, respondents were asked reasons for their non-enrolment for MOOC. Figure 2 reveals that some main reasons given for non-enrolment for MOOC are lack of time to participate (32%), lack of internet access (27%) and slow internet connection (23%). This implies that time and access to a fast internet connection are factors that inform respondent's decision to enrol for a course on any of the MOOC websites.

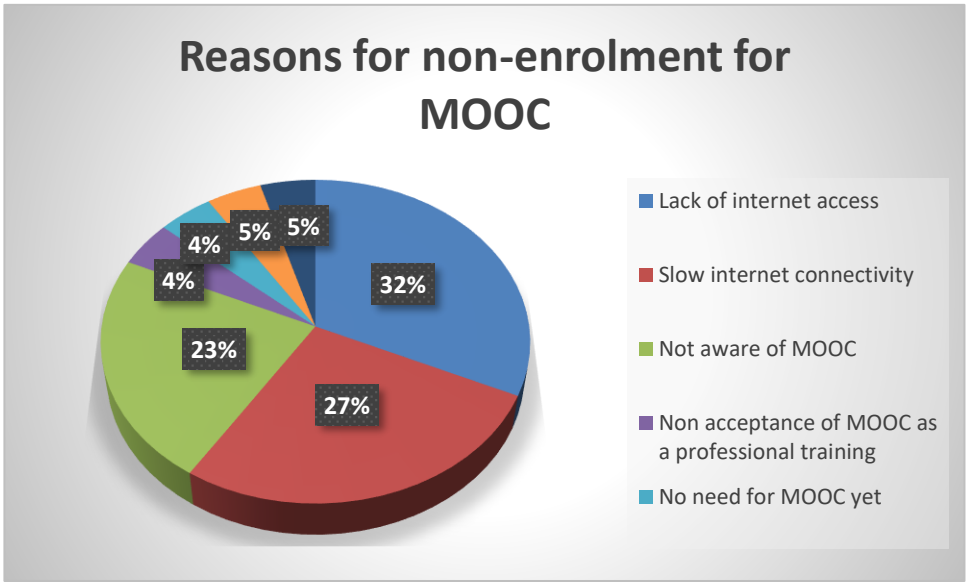

Figure 2. Reasons for non-enrolment for MOOC

On respondents' enrolment for MOOC, the study sought answers to questions on the type of websites, course fee option, courses enrolled and their reasons for enrolment. Figure 3 revealed that many of the respondents enrolled for at least a course on Coursera. This finding may imply that Coursera may be a popular MOOC website among lecturers.

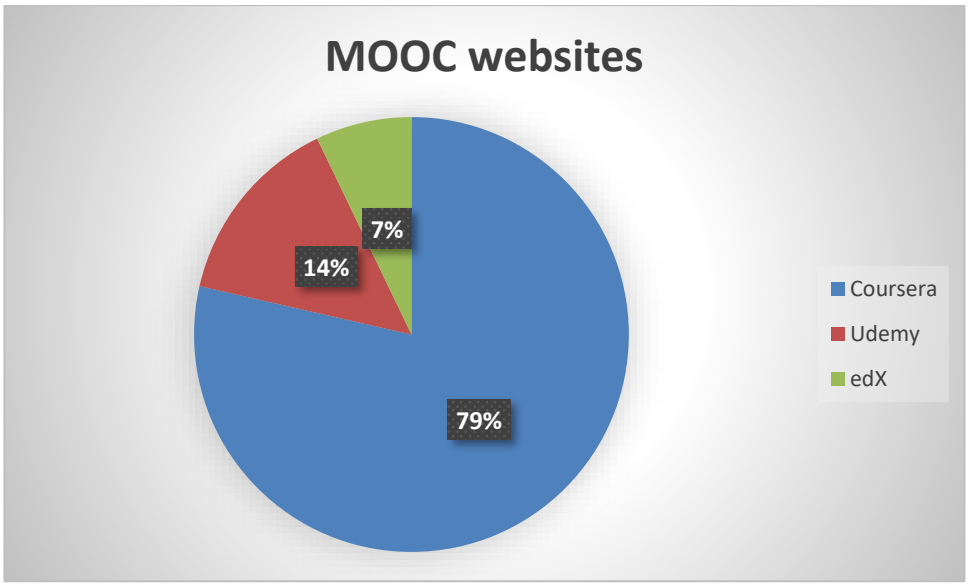

Figure 3. Types of MOOC websites

Table 1 revealed that respondents decided to enrol for a course on any of the MOOC website mainly because they wanted to acquire skills and update their knowledge (73.3%). Just a few enrolled to explore new areas in their subject area and improve teaching and learning (7%). This may mean that many of the respondents perceived MOOC as a lifelong learning tool and not necessarily a tool for professional development. Furthermore, the respondents mentioned the various courses they have enrolled for at one point or the other. The courses are advertising persuasion, data analysis, programming, digital marketing, economics, financial markets, financial modelling, financial planning, games theory economics, ICT in classroom, peace and conflict, public speaking, and web design. From this result, it appears respondents enrolled for courses that will either improve their skill, especially, technical skills as well as update their knowledge on their subject area or specialisation. This aligns with their reasons for enrolment. Notably, only 6.7% of the respondents indicated that they had been charged a fee to participate in a MOOC.

Table1. Reasons for enrolling in MOOCs.

Reasons	**Frequency (n=15)**	**Percentage**
Skill acquisition	11	73.3
Knowledge Update	11	73.3
Improve employment opportunities	5	33.3
Personal Development	5	33.3
Explore new areas in my discipline	1	7
Improve teaching and learning	1	7

Participation in MOOC

Since enrolment on the websites is a prerequisite to MOOC participation, participation was analysed based on the responses of the respondents that had enrolled on any of the MOOC websites at least once. Regarding participation, a few (20%) of the respondents indicated active participation in courses they enrolled for on any of the MOOC websites. Many (80%) on the other hand had inactive participation in MOOC. This confirms the general knowledge that enrolment does not necessarily translate to participation. In addition, respondents were asked about the reasons for inactive participation. Figure 4 revealed reasons for inactive MOOC participation among respondents. Slightly above half, 53% of the respondents agreed that lack of time is a major reason for inactive participation. Slow internet connection was also indicated as a reason for inactive participation in courses on MOOC websites. Figure 5 revealed that above half of the respondents (57%) that actively participated in at least one course on MOOC websites received a statement of accomplishment. Others received other forms of documents. This may mean that those who actively participate received a document to serve as evidence.

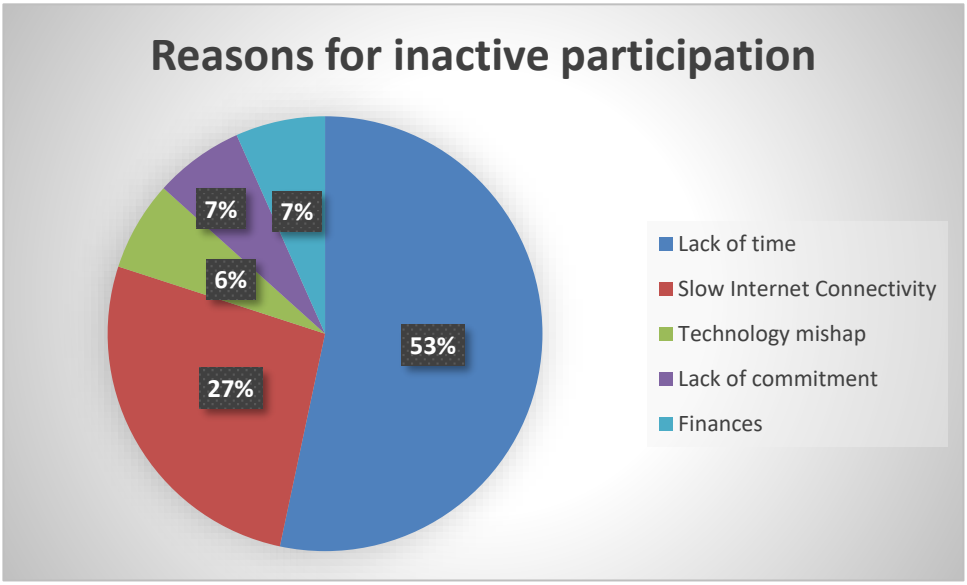

Figure 4. Reasons for inactive participation

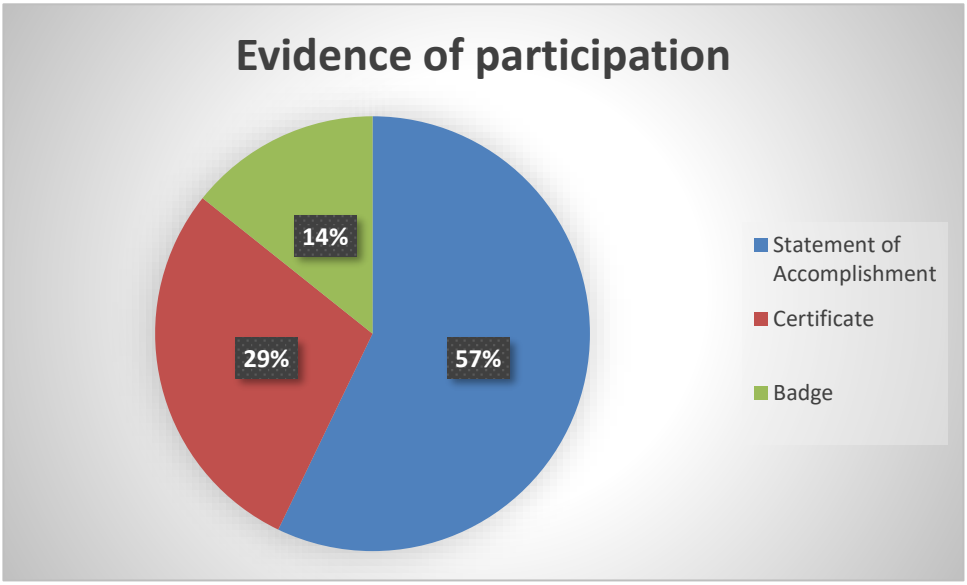

Figure 5. Document received at the end of MOOC

Influence of digital literacy skills on MOOC participation

Finally, a logistic regression analysis was performed to ascertain the influence of digital literacy skills on the likelihood that respondents' will enrol in MOOC. The result of the

analysis as shown in Table 2 revealed no statistically significant influence of digital literacy skills on enrolment in MOOC (X^2=2.35, p>0.05). This implies that the respondents' enrolment or non-enrolment in MOOC is not a function of their level of digital literacy skills.

Table 2. Regression analysis of digital literacy skills on MOOC participation.

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	67.480[a]	.000	.000
$X^2 = 2.35$, $\rho = 0.969$			

Discussion

The study's findings revealed that generally, lecturers had advanced digital literacy skills. This implies that lecturers can manage computer hardware and software, create information online, find information online and use online information at an advanced level. These findings corroborate the findings of Castaño-Muñoz et al. (2017) who indicated that participants of MOOCs within the European Union had high digital competence. However, deviates from the findings of Garrido et al. (2016) where 80% of the respondents had a basic and intermediate level of ICT skills.

Regarding the enrolment for MOOC, this study revealed that just a few of the respondents had enrolled for at least a course on any of the MOOC website. This implies a low level of enrolment on the MOOC website. This finding is in agreement with the findings from a study that found low enrolment level among medical faculties in India (Dhanani et al., 2016). Some of the main reasons for non-enrolment are lack of time to participate, lack of internet access and slow internet connection. This is line with studies

that have shown that lack of time to participate is one of the challenges of MOOC enrolment (Ecclestone, 2013 and Hew, & Cheung, 2014). Importantly, this study found out that main reasons for respondents' enrolment for MOOCs are skill acquisition and the desire to fill a knowledge gap. This finding projects MOOC as a lifelong learning tool rather than a tool to promote professional development. This deviates from the findings of Ghazali and Nordin (2016) who noted that University Lecturers in Malaysia use MOOC for teaching and learning purpose. Interestingly, among those that enrolled, many enrolled on the Coursera website. This is against the findings of a study of MOOC where MIT Open Courseware was the most popular website among medical faculties (Dhanani et al. 2016).

Furthermore, very few of those that enrolled for at least a course on the MOOC website indicated they actively participate in the courses they enrolled for. Notably, all active participant received some document to verify their participation; majorly, a statement of accomplishment. This confirms a general opinion that MOOC enrolment does not translate to active participation. It also corroborates the findings of Garrido et al. (2016) where only 38% of the study's participant had taken at least a course on any of the MOOC websites, and 49% of MOOC users received certification in a MOOC class. From the literature, it is believed that MOOC users are either active or inactive (Escher, Noukakis, and Aebischer, 2014). Similarly, Mohamed and Hammond (2018) noted that active learners received badges once they completed or attempted a task. Also, more than half of the respondents indicated lack of time as a major reason for inactive participation on MOOC. This relates to the findings of Garrido et al. (2016) who noted that lack of time was a major barrier to MOOC participation.

Finally, the study's regression analysis revealed that lecturers' digital literacy skill did not significantly influence their enrolment in MOOC. Therefore, participation in

MOOC is not a function of digital literacy skill level. This does not support the findings of Castaño-Muñoz et al. (2017) who found out that participant's level of digital competence is an important predictor for participants decision to enrol for MOOC.

Conclusion and Recommendations

Massive Open Online Course is evidently a significant development in learning technologies. Just like other forms of innovation, it presents both benefits and challenges to higher education. Notably, MOOC serves as a lifelong learning tool for individuals. However, there is still a low level of enrolment, and low level of active participation in MOOC, majorly due to lack of time on the part of users, slow internet connection, lack of recognition by employers and users' skill. Also, MOOC promotes skill acquisition and knowledge update among lecturers. Although this study statistically found no significance between digital literacy skill and MOOC participation, this may be because of the group of people that participated in the study. Other studies may want to investigate another group of people and other factors that promote active MOOC participation. The following recommendations are proposed:

1. University management should put in place strategies to maintain and improve the digital skills of the lecturer.
2. University management should encourage lecturers to engage in lifelong learning activities by apportioning a time period for them to do so, perhaps on a daily basis.
3. University management should strategise on improving access to a fast internet connection.
4. MOOC stakeholder must strategise on how to promote benefits of MOOC among employees and employers to improve the level of enrolment and participation.

Lecturers should devise a means for creating time so they can participate in MOOC since MOOC is a self-directed learning approach.

Limitation of the study

While this study is not without some limitations, they do not undermine the findings. First, the population of the study is limited to management and social science faculties in a Nigerian private university. Furthermore, previous studies that have examined the level of digital literacy skill and MOOC participation have used participants who had already enrolled for one or more MOOC class. However, it was challenging to predetermine respondents who already enrolled in a MOOC class in the context of the study. As such, generalising findings from this study should be done with caution.

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